



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,857	03/04/2004	Masakuni Ezumi	648.43604X00	3767

20457 7590 10/11/2005

ANTONELLI, TERRY, STOUT & KRAUS, LLP
1300 NORTH SEVENTEENTH STREET
SUITE 1800
ARLINGTON, VA 22209-3873

EXAMINER

ABOAGYE, MICHAEL

ART UNIT	PAPER NUMBER
----------	--------------

1725

DATE MAILED: 10/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,857

Applicant(s)

EZUMI ET AL.

Examiner

Michael Aboagye

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) 3 and 4 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 2 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1- 4 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>03/04/04 & 03/28/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 and 2, drawn to a method of friction welding, classified in class 228, subclass 112.1.
 - II. Claims 3 and 4, drawn to a product of friction welding, classified in class 428, subclass 598.
2. Inventions I and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made from other processes such as butt welding, arc welding, or brazing.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Art Unit: 1725

4. During a telephone conversation with Attorney William Solomon on September 26, 2005 a provisional election was made with traverse to prosecute invention I, claims 1 and 2. Affirmation of this election must be made by applicant in replying to this Office action. Claims 3 and 4 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. Figures 7- 9 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The paragraph "inserting rotary tools of the same size with the same insertion depth to the plates from the side having the projections, and performing friction stir welding" recited in claim 1 is unclear. It is unclear whether the plural members are joined at the abutted projection portions simultaneously or sequentially using rotary tools of the same size. Appropriate clarification is required.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1725

9. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants' admitted prior art (AAPA) in view of Koichi et al.(JP 2002-224858 A, Computer translated version).

AAPA teaches a friction stir welding method, comprising: providing a plurality of members (10, 11 and 12), said plurality of members being hollow shaped and made of two parallel face plates; each having projections (18) at end portions of a plate that protrude toward a direction of thickness of the plate; butting an end portion of the plate against an end portion of an adjacent plate, wherein the thickness of the plate of at least one member is different from the thickness of the plate of another member, and the protruded height of the projections(18) at the butt joint portions are of the same height; and inserting rotary tools of the same size with the different lengths to correspond to the butt portions depth from the side having the projections, and performing friction stir welding (AAPA Figures 7-9 and applicants' specification pages 2- 5).

AAPA doesn't teach that the protruded height of the projection on the plates at a butt joint portion where the plate thickness is large is smaller than the protruded height of the projections on the plates where the plate thickness is small, and the protruded height of the projection where the plate thickness on the plates at a butt joint portion is small is larger than the protruded height of the projections on the plates where the plate thickness is large.

However Koichi et al. teaches a friction stir welding method of joining members of different thickness, comprising providing a surface plate (3) with difference in level heights such that level height on the plates at a butt joint portion where the plate

Art Unit: 1725

thickness is large is smaller than level height on the plate where the plate thickness is small, and the level height of where the plate thickness on the plates at a butt joint portion is small is larger than the level height on the plate where the plate thickness is large; inserting a tool (10) to perform stir welding, wherein heat generated by friction stirring is uniformly distributed across the butt portions of both the thicker and the thinner plate, completely fusing the butt joint and producing a secured and a joint of good integrity (Koichi et al., Abstract, Drawings, 1&2, and Detailed Description, [0001] – [0020]).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the method of AAPA in view of the teachings of Koichi et al. to enable the use of rotary tool of the same size and with the same insertion depth to join plates of the different thickness; wherein heat generated by friction stirring is uniformly distributed across the butt portions of both the thicker and the thinner plate, fusing the abutted portion and producing a secured joint of good integrity (Koichi et al., Abstract, Drawings, 1&2, and Detailed Description, [0001] – [0020]).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Satou et al. (US 6315187), Enomoto et al. (US 5979742), Kawasaki et al. (US 6378264), Kawasaki et al. (US 6532712), Nakamura et al. (US 6599641) and Ezumi et al. (US 6193137) are cited in PTO- 892.

Art Unit: 1725

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Aboagye whose telephone number is 571-272-8165. The examiner can normally be reached on Mon - Fri 8:30am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas Dunn can be reached on 571-272-1171. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AM
AM



Michael Aboagye
Assistant Examiner
Art Unit 1725

10/5/2005

KEVIN KERNS
PRIMARY EXAMINER

Kevin Kerns 10/6/05